# PATENT ABSTRACTS OF JAPAN

(11)Publication number :     08-221187

(43)Date of publication of application : 30.08.1996

(51)Int.Cl.

GO6F  3/033
A63F  9/22
G09G  5/08
G09G  5/34
HO4N  7/18
// F41G  3/00

(21)Application number : 07-028524

(22)Date of filing :     16.02.1995

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(54) INPUT DEVICE AND METHOD FOR IMAGE PROCESSING, AND DEVICE AND METHOD FOR IMAGE PROCESSING USING THEM

(57)Abstract:

PURPOSE: To provide an image control signal input device which can perform plural image processes independently through easy operation.

CONSTITUTION: A player 1 puts on a head mount device 11 on his or her head 2, holds a gun 12 as an input device for hand operation in the hand, and faces the display device 14 of the image processor 13. The display device displays specific images on the basis of a video signal Vd supplied from a video control part 15. The video control part 15 scrolls the screen in the direction that the head faces with a 1st image control signal supplied from the head mount device 11 and moves the cursor on the screen with a 2nd image control signal supplied from the gun 12.
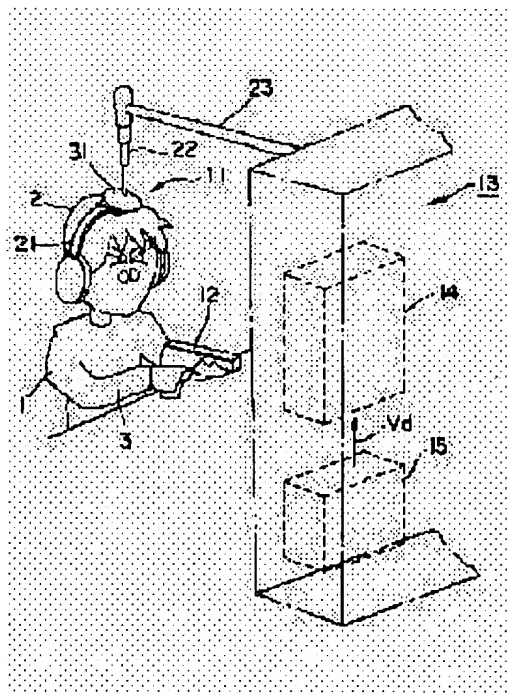
LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

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## DETAILED DESCRIPTION

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[Detailed Description of the Invention]
[0001]
[Industrial Application] this invention relates to the input of the picture control signal especially in a game machine with respect to the equipment which inputs a picture control signal to an image processing system, and its method. Moreover, this invention relates to the image processing system equipped with this input unit and method, and its method.
[0002]
[Description of the Prior Art] Generally from the former, this kind of image processing system is equipped with a display means to display a predetermined picture (screen), and the image control means which perform an image processing according to a picture control signal, make the processing result a video signal, and are supplied to a display means. The picture control signal from a picture control signal input unit is supplied to these image control means. Moving the display object in the screen of a display means (for example, cursor) in the predetermined direction, or making a screen scroll in the predetermined direction for example, with a picture control signal as this picture control is performed. For this reason, a display object can be moved according to view movement, and a screen can be made to scroll by moving a mouse, pushing the arrow key of the four directions on a keyboard, and controlling other operation keys and control levers of the input unit for operation.
[0003] Thus, the arrow key on a mouse and a keyboard or all the other signal input units for operation are equipment operated by the hand, recently, both hands are used and the game machine which can input two direction signals simultaneously is proposed. The equipment which can input a picture control signal into an image processing system on the other hand, without using a hand is shown in JP,4-310999,A. Conventionally [ this ], equipment constitutes a directional-control signal based on the sense (direction to move) of the head of a player, and moves the cursor on a screen in the direction.
[0004]
[Problem(s) to be Solved by the Invention] There are the following problems in this kind of conventional equipment. If it is going to supply two direction signals separately simultaneously only with both hands, operation will take skill extremely and, generally operation will become quite difficult. Moreover, conventionally which is proposed by JP,4-310999,A, equipment can input only one picture control signal at once, while operation becomes easy, since a picture control signal can be inputted with the sense of a head, without using a hand.
[0005] Then, this invention aims at offering the picture control signal input unit for performing independently two or more image processings simultaneously by easy operation. Moreover, other purposes are to offer the image processing system equipped with this input unit. The purpose of further others is to offer the input method for the image processing which can perform independently two or more image processings simultaneously by easy operation. Furthermore, other purposes are to offer the image-processing method equipped with this input method.
[0006]
[Means for Solving the Problem] In order to attain this purpose, the input unit concerning this invention

An image processing is performed according to a display means according to claim 1 to display an image like, and a picture control signal. The head wearing means against the image processing system equipped with the image control means which make the processing result a video signal and are outputted to the aforementioned display means with which is an input unit and a head is equipped, A head position detection means to detect the movement of this head, and a 1st picture control signal output means to output the 1st picture control signal based on the data obtained with this head position detection means, It has a 2nd picture control signal output means to output the 2nd picture control signal based on operation by the bodies other than a head, and is characterized by supplying the picture control signal of the above 1st, and the 2nd picture control signal output means to the aforementioned image control means.

[0007] Invention according to claim 2 is characterized by supplying the aforementioned image control section independently, respectively as a signal for moving the display object which considers as the signal for displaying the screen which looked at the picture control signal of the above 1st, or the 2nd picture control signal from the predetermined view for the aforementioned display means, and is displayed on this screen in the picture control signal of another side. Moreover, invention according to claim 3 is characterized by equipping the aforementioned 2nd picture control signal output means with the control panel operated by hand.

[0008] Invention according to claim 4 is characterized by equipping the aforementioned head position detection means with the degree sensor of vertical position angle which measures angle of rotation of the vertical direction of the head which used the predetermined neutral position as the supporting point, and the degree sensor of right-and-left position angle which measures angle of rotation of the longitudinal direction of the head which used the neutral position concerned as the supporting point. Moreover, invention according to claim 5 is characterized by for the aforementioned image control means controlling the direction of screen rolling based on the picture control signal of the above 1st, and controlling the move direction of the collimation in a screen based on the 2nd picture control signal.

[0009] The image processing system concerning this invention is characterized by having a display means to display an image, the image control means which carry out an image processing according to a picture control signal, make the processing result a video signal, and are given to the aforementioned display means, and the input unit of five a claim 1 or given in any 1 term, as shown in a claim 6.

[0010] Moreover, the head position detection process of the input method concerning this invention being the input method for the image processing which perform an image processing according to a picture control signal, and displays by making the processing result into an image as shown in a claim 7, and detecting the movement of a head, The 1st picture control signal output process which outputs the 1st picture control signal according to the movement of a head, It has the 2nd picture control signal output process which outputs the 2nd picture control signal based on operation of the bodies other than a head, and is characterized by making the picture control signal of the above 1st, and the 2nd picture control signal into the input signal for an image processing.

[0011] Furthermore, as shown in a claim 8, the image-processing method concerning this invention is equipped with the input method according to claim 7, and is characterized by performing independently two or more image processings according to each signal of the picture control signal of the above 1st, and the 2nd picture control signal.

[0012]

[Function] According to the input unit and method of this invention, detection of a head position detects the movement of a head according to the movement of the view towards the screen etc., a position, and the sense, form the 1st picture control signal based on this detection data, this 1st picture control signal and the 2nd picture control signal formed based on operation of the bodies other than a head are made to become independent, and it gives image control means. In order to obtain this picture control signal, even if the input of two or more sorts of control signals is required because of two or more image processings, from using the head, these can be supplied independently to image control means simply and quick still more nearly simultaneous. Therefore, the image processing system and method of this invention perform independently two or more image processings quickly and simultaneous using these

two picture control signals.

[0013] the [ moreover, / the 1st picture control signal output means or ] -- as a signal which performs the image processing for displaying on a screen the image which looked at the picture control signal outputted from either of the 2 picture control signal output meanses from the predetermined view The picture control signal of another side is made into the signal for moving the aforementioned display object, and control for scrolling of a screen, the position of the display object in a screen, and movement is simultaneously performed independently by easy and quick operation. For example, although there is sometimes nothing plentifully with game equipment if it is the verge which performs quickly updating (scrolling of screen) control of a screen, and move control of the display object in a screen (for example, collimation in a shooting game) simultaneously, this invention realizes the input of the control signal of the control sake of the direction of screen rolling, and the move direction of collimation, becoming independent simply and quickly. Moreover, the aforementioned head position detection means detects all the positions of a head, and the direction of movement by having the degree sensor of vertical position angle, and the degree sensor of right-and-left position angle.

[0014]

[Example] Next, the example of this invention is explained based on a drawing. This whole example composition is shown in drawing 1 , and the screen in the display of this example is shown in drawing 2 . In addition, it takes for the example of shooting game equipment, and an example is explained. As shown in drawing 1 , a player 1 is covered with head wearing equipment 11 on the head 2, and is an input unit for a manual operation, has the play gun 12 as a 2nd picture control signal input means of this invention in a hand 3 (a right hand, a left hand, or both hands), and stands face to face against the display 14 of an image processing system 13.

[0015] Display 14 also displays simultaneously the display object (cursor (collimation)) 120 which moves in the inside of Screen 110 while displaying the video signal Vd given from the image control unit 15 as one screen 110, as shown in drawing 2 .

[0016] Moreover, while being prepared in head wearing equipment 11, based on the 1st picture control signal formed according to the detection result of the head position detection means 31 (refer to drawing 4 ) as the 1st picture control means, the image control unit 15 displays the picture except making Screen 110 scroll in the illustration arrows U, D, and R and the direction of L, and being displayed on the present screen. Simultaneously, the image control unit 15 performs the image processing which moves collimation 120 in Arrows u, d, and r and the direction of l on Screen 110 with the 2nd picture control signal formed based on the positional information from the play gun 12, and gives the video signal which carried out the image processing such to display 14. That is, make Screen 110 scroll in the illustration arrows U, D, and R and the direction of L with the 1st picture control signal, a front example makes the image seen from the predetermined (request) view to display 14 become independent of an oak and this, and a standard is simultaneously displayed on a screen.

[0017] The perspective diagram of the head wearing equipment of this example is shown in drawing 3 . The important section (perspective diagram) of this equipment is shown in drawing 4 in detail. Some examples of assembly of head position detection equipment are shown in drawing 5 . The example of detection of a head position is shown in drawing 6 . As shown in drawing 3 , the end of the head gear section 21 with which the head of a player is equipped, the height adjustment shaft 22 connected in the center of the length direction of this head gear section 21, and this height adjustment shaft 22 is fixed, and head wearing equipment 11 is equipped with the support shaft 23. This support shaft 23 is fixed to the main part of an image processing system 13 etc.

[0018] As shown in drawing 4 , the semi-sphere-like loudspeaker section 24 is formed in the both ends of the head gear section 21, and a cushion 25 is attached around the opening side periphery of the semi-sphere-like loudspeaker section 24, and it is a wrap about both the ears of a player 1. As shown in drawing 3 , the height adjustment shaft 22 consists of slide shafts 26a, 26b, and 26c of a three-step formula, and receipt or the cash drawer of shaft 26c has become possible in shaft 26b. Receipt or a cash drawer is possible for shaft 26b in shaft 26a, therefore the height adjustment shaft 22 can adjust the height of the head gear section 21 as a whole. Between the head gear section 21 and the height

adjustment shaft 22, as shown in drawing 4 , the head position detection equipment 31 which detects the movement of a head is formed.

[0019] Head position detection equipment 31 is equipped with the degree sensor 32 of vertical position angle which measures angle of rotation of the vertical direction (the gravity direction) of the head which used the predetermined neutral position as the supporting point, and the degree sensor 33 of right-and-left position angle which measures angle of rotation of the longitudinal direction (longitudinal direction) of the head which used the neutral position as the supporting point. In more detail, as shown also in drawing 5 , it left the fixed piece 35 to some fixed objects 34 fixed to the height adjustment shaft 22, the notch 36 was formed, and a rotation coma 38 is attached in the fixed piece 35 possible [ rotation ] by the axis of rotation 37. And the degree sensor 32 of vertical position angle is being fixed to the fixed object 34, and it enables it to measure angle-of-rotation thetau of the vertical direction of the head which used the predetermined neutral position as the supporting point O, and thetad by detecting that a rotation coma 38 rotated the axis of rotation 37 as the center of rotation by the degree sensor 32 of vertical position angle, as shown in drawing 6 .

[0020] Moreover, the notch slot 39 is established in the center section of a rotation coma 38, and the axis-of-rotation fixed part 40 is formed in the lower part of a rotation coma 38. The disk 42 which the axis of rotation 41 installed from the center section of the head gear section 21 as shown in drawing 4 is engaging with this axis-of-rotation fixed part 40 possible [ rotation ], and was prepared in the edge of the axis of rotation 41 has fitted into the notch slot 39 of a rotation coma 38 possible [ rotation ]. Moreover, the degree sensor 33 of right-and-left position angle is installed in the minor-axis (shorter side) side of the notch slot 39 of a rotation coma 38, and enables it to measure angle of rotation of the longitudinal direction (the direction of **** X of drawing 6 ) of the head which used the neutral position as the supporting point O by detecting that the disk 42 which is engaging with the notch slot 39 rotated by the degree sensor 33 of right-and-left position angle.

[0021] The block diagram concerning an example of the electrical circuit of head wearing equipment and the digital disposal circuit of an image processing system is shown in drawing 7 . The electrical circuit portion of head wearing equipment 11 consists of the electrical signal circuit section 45 containing head position detection equipment 31, and the head controller section 46 which is the 1st picture control signal output means. The loudspeaker 47 of right and left of the degree sensor 32 of vertical position angle, the degree sensor 33 of right-and-left position angle, and the loudspeaker section 24 is connected to the connector board section 48, and each sensors 32 and 33 and the loudspeaker 47 are connected to the head controller section 46 for this electrical signal circuit section 45 through the connector board section 48.

[0022] The head controller section 46 forms the 1st picture control signal Sa based on the data obtained by the degree sensor 32 of vertical position angle of head position detection equipment 31, and the degree sensor 33 of right-and-left position angle, and outputs it to the radial transfer section I/O section 51. Moreover, it connects with the voice section (AMP) 16 of an image processing system 13 (refer to drawing 1 ), and the head controller section 46 supplies the sound signal from here to a loudspeaker 47 through the connector board section 48 of the electrical signal circuit section 45.

[0023] Moreover, the 2nd picture control signal output means 49 including the play gun 12 is operated with right hand 3 (a left hand or both hands may be used) other than a head, and forms and outputs the 2nd picture control signal Sb. The 1st picture control signal Sa is made into the signal for scrolling a screen, and the 2nd picture control signal Sb is used independently as a signal for moving collimation 120, respectively.

[0024] The output terminal of the head controller section 46 and the output terminal of the 2nd picture control signal output means 49 are connected to the radial transfer I/O section 51 of the image control section 15. A control section 50 controls operation of the voice section 16 and the image processing section 53 based on the game program memorized by the memory section 52 which consists of RAM, a ROM, etc., and the 1st picture control signal Sa and the 2nd picture control signal Sb, forms an acoustic signal in the voice section 16, makes a video signal Vd form in the image processing section 53, and supplies both to display 14.

[0025] That is, from the image processing section 53, a control section 50 gives the video signal which moves collimation 120 in the illustration arrows u, d, and r and the direction of l on Screen 110 to display 14 with the 2nd picture control signal Sb, for example, while making Screen 110 scroll in the illustration arrows U, D, and R and the direction of L with the 1st picture control signal Sa as shown in drawing 2 . Moreover, a control section 50 can control now blink of the coin chute lamp 17 through the radial transfer I/O section 51. In addition, a sign 19 is a power supply section and power is supplied to display 14, the image control section 15, and the voice section 16 from a power supply section 19.

[0026] Next, operation of this example is explained based on drawing 8 , referring to drawing 1 or drawing 7 . The flow chart corresponding to this operation is shown in drawing 8 . First, the control section 50 in the image control section 15 judges that coin was thrown into the coin shooter which does not illustrate (Step 201 (S)). Here, when coin is not thrown in, (S201;NO) and a control section 50 take out the image data and voice data for advertisement from the memory section 52, and a video signal Vd and a sound signal are formed, respectively, and while the image processing section 53 and the voice section 16 supply a video signal to display 14 and display a predetermined screen on it, they generate the sound signal which supplies a sound signal to a loudspeaker 47, and corresponds and corresponds on a screen (S202).

[0027] As shown in drawing 1 , when a player 1 is covered with head wearing equipment 11, grasps the play gun 12, is located in front of display 14 and throws in coin, on the other hand, a control section 50 It judges with coin having been thrown in (S201;YES), and the image data for predetermined guidance screens etc. are taken out from the memory section 52, and the image-processing section 53 forms the video signal Vd of a predetermined guidance screen, and display 14 is supplied (S203).

[0028] since the control section 50 always judges whether the button for a game start was pushed (S204), while this start button is not pushed -- (S204;NO) -- it continues the display action of a guidance screen as it is (S203, S204) When a control section 50 judges with the start button having been pushed, while taking out the image data and voice data of a game according to the game program in (S204;YES) and the memory section 52, and carrying out drive control of the image processing section 53 and forming the video signal Vd of a game, drive control of the voice section 16 is carried out, and a sound signal is formed (S205). Therefore, as shown in drawing 2 , Screen 110 and the collimation 120 in this will be displayed on display 14.

[0029] The control section 50 is always supervising the 1st picture control signal Sa and the 2nd picture control signal Sb through the radial transfer I/O section 51 (S206, S208), and when these picture control signals Sa and Sb are not inputted, it shifts to the judgment of being (S206;NO, S208;NO), and game over (S210).

[0030] The 1st picture control signal Sa is inputted through the radial transfer I/O section 51, and a control section 50 scrolls (S206;U) and Screen 110 to above [ U ], when it is the above picture control signal Sa (S207U). Moreover, a control section 50 scrolls (S206;D) and Screen 110 to down [ D ], when it is the down picture control signal Sa (S207D). Furthermore, a control section 50 scrolls (S206;R) and Screen 110 rightward [ D ], when the 1st picture control signal Sa is a rightward picture control signal (S207R). A control section 50 scrolls (S207;L) and Screen 110 rightward [ L ] further again, when it is the leftward picture control signal Sa (S207L).

[0031] Here, if a player 1 turns a visual axis to the position of Screen 110 displayed on display 14, a head 2 will detect the sense of this head 2, and a position toward a predetermined direction by the degree sensor 32 of vertical position angle of the head position detection means 31, and the degree sensor 33 of right-and-left position angle by having turned the visual axis. The data obtained from the degree sensor 32 of vertical position angle and the degree sensor 33 of right-and-left position angle are changed into the 1st picture control signal Sa in the head controller section 46. If this 1st picture control signal Sa is inputted into a control section 50 through the radial transfer I/O section 51, as mentioned above, processing will be performed and Screen 110 currently displayed on display 14 will be scrolled in the predetermined directions U, D, R, and L (S207U, S207D, S207R, S207L).

[0032] moreover, the player 1 -- the play gun 12 -- predetermined -- turning -- if -- this information -- being based -- the 2nd -- the picture control signal output means 49 forms the 2nd picture control signal

Sb This signal Sb is given to a control section 50 through the radial transfer I/O section 51. A control section 50 judges which signal of the direction of four directions (u, d, r, l) the 2nd inputted picture control signal Sb is (S208). An image processing is performed like the time of the 1st picture control signal, and the display object 120 on Screen 110 currently displayed on display 14 (collimation) is moved in the predetermined direction (the illustration arrows u, d, and r, the direction of l) (S209u or S209l.).

[0033] Then, a control section 50 judges whether it is game over (S210), and if it is not game over (S210;NO), a series of routines will be performed repeatedly (S205). It judges whether (S210;YES) and a control section 50 terminate processing at the time of game over, and it carries out the return of the processing to an end (S211;YES) or Step 201 (S211;NO).

[0034] In this example, change of the visual axis by which a player 1 goes to a screen moves the head 2 of a player 1 in connection with this. The head position detection means 31 detects the movement of this head, the sense, and a position, forms the 1st picture control signal Sa in the head controller section 46 from the detection data, gives the 1st picture control signal Sa to the image control section 15, and enables scrolling of Screen 110. Moreover, the 2nd picture control signal Sb is formed with the 2nd picture control signal output means 49 including the play gun 12, this 2nd picture control signal Sb is given to the image control section 15, and the display object 120 is moved. Therefore, two picture control signals Sa and Sb can be easily obtained independently, and scrolling and the display object of a screen can be moved in the direction moreover meant free. In addition, in this example, although one image processing called game program execution was realized to movement of scrolling and cursor, using two picture control signals Sa and Sb respectively, you may use two picture control signals Sa and Sb for a respectively independent image processing.

[0035] Drawing 9 and drawing 10 show the 2nd example of this invention, drawing 9 is drawing showing this 2nd example, and drawing 10 is drawing explaining the example of the screen obtained according to this example. The place where the 2nd example shown in drawing 9 is different from the 1st example is as follows. Right-hand 4a and left-hand 4b appear in the play gun 12 shown in the 1st example instead, respectively, and the operational levers 12R and 12L are formed. The control input of control levers 12R and 12L is detected by the detection sensor which is not illustrated, and forms and calculates the 2nd picture control signal Sb (refer to drawing 7) for scrolling a screen based on the detection data. On the other hand, the 1st image control signal Sa for movement of collimation (cursor) 120 is formed in the head controller section 46 based on the detection data from the head position detection means 31.

[0036] Next, operation of this example is explained. When an image processing system 13 operates, as shown in drawing 10 (a), screen 110a of display 14 shows that it is under advance about a passage 130 top, and the obstruction 140 exists far away. And at the next time, as shown in drawing 10 (b), it is shown that the environment which progresses a passage 130 top by operation of control levers 12R and 12L is developed, and the display object 120 moves [ the movement of the head 2 of a player 1 ] in a screen 110b top according to the sense of a head. Moreover, at the next time, as shown in drawing 10 (c), the screen where game environment advanced further is developed.

[0037] Thus, also according to the 2nd example, since a picture control signal can be formed from each of both hands 4a and 4b and a head 2, an input becomes possible simultaneous and easily conventionally about the direction signal for picture control with which plurality became independent.

[0038] Drawing 11 is the perspective diagram showing other examples of composition of head wearing equipment. Drawing 12 shows the state where the head was equipped with the head wearing equipment of drawing 11. The place where head wearing equipment 11A shown in drawing 11 differs from the head wearing equipment 11 shown in drawing 4 fixes the band 61 which goes around a head 2 to the head gear section 21, and as shown in drawing 12, the head gear section 21 is to have made it a head 2 equipped stably. In addition, since other composition is the same as that of the thing of drawing 4, the same sign is attached and the explanation is omitted.

[0039] Drawing 13 is drawing showing the example of composition of further others of head wearing equipment. Head wearing equipment 11B shown in drawing 13 is equipped with the following features.

The fixed object 34 is fixed in the center section of the cylindrical longitudinal adjustment shaft 65 expanded and contracted horizontally, the height adjustment shafts 66R and 66L are elastically fixed to the ends of this cylindrical longitudinal adjustment shaft 65 downward, and moreover Stoppers 67R and 67L are fixed to each soffit section of the height adjustment shafts 66R and 66L, and a cable 68 is extended from the end of stopper 67R.

[0040] Drawing 14 is the perspective diagram showing the example of the structure of a system using the head wearing equipment of drawing 13 . The system shown in drawing 14 connects head wearing equipment 11B to an image processing system 13 by the cable 68, and winks to one side of the loudspeaker section 24, and forms a sensor 69. And if the direction of the view which looked at screen 110A (refer to drawing 15 ) through this blink sensor 69 is detected with the head position detection means 31 and the blink sensor 69 detects a blink, the character on the screen of the view etc. will be given to an image processing system 13.

[0041] In the equipment of such composition, first, the interval of both the stoppers 67R and 67L is adjusted, and a player 1 adjusts height predetermined with the height adjustment shafts 66R and 66L so that the breadth of its shoulders may be suited with the longitudinal adjustment shaft 65, and it wears the head gear section 21 on a head 2. In the image processing system 13, screen 110A as shown in drawing 15 shall be displayed as opposed to display 14. And if it winks when a player 1 changes the view over screen 110A, the display object 120 moves to illustration four directions and the display object 120 is displayed on a predetermined character, and it winks through a sensor 69, the character of the point will be inputted. And for example, the selected character is displayed on the lower part of screen 110A by the direction signal inputted by the aforementioned method.

[0042] Thus, in this example, the code of the request which is made to move the display object 120 and is displayed on screen 110A by the blink sensor 69 can be inputted by detecting movement of a head 2 according to movement of the view of a player 1 with the head position detection means 31. It follows, for example, even if it has trouble in a hand, a required character can be inputted easily. Moreover, by applying this example to game equipment, even if it has trouble in a hand, it can carry out skilled [ of the game equipment ].

[0043] Although the picture control signal accompanying movement of a head and the picture control signal operated and obtained in the portions of a hand and an eye except a head were used as a directional movement signal for movement of cursor, or scrolling of a screen according to each example explained here, it may be applied not only to this but to other image processings. Moreover, supposing both hands and both legs are alike, respectively and the 2nd picture control signal output means is therefore operated as what is operated in portions other than a head Since it becomes possible to input five kinds of picture control signals into an image control section by all of the head, both hands, and both legs and a head can also be used as an input means, the input of the control signal of varieties is made easier than the conventional thing. Game equipment excellent in a feeling of a hobby (generally the input of the picture control signal of varieties is required of this kind of game equipment.) For example, operation of the thing using the simulation controlling gear of the aircraft is made easy.

[0044]

[Effect of the Invention] According to the input unit and method of this invention, detect the movement of the head accompanying the movement of the view towards the screen, a position, and the sense, and the 1st picture control signal is formed based on this detection data. Since this 1st picture control signal and the 2nd picture control signal formed based on operation of the bodies other than a head are made to become independent and it gives an image control-section means In order to obtain this picture control signal, even if the input of two or more control signals is required because of two or more image processings, from using the head, these can be supplied independently to image control means simply and quick still more nearly simultaneous. Consequently, the image processing system and method of this invention perform independently two or more image processings quickly using these two picture control signals.

[0045] moreover -- according to this invention -- the [ the 1st picture control signal output means or ] -- as a signal which performs the image processing for displaying on a screen the image which looked at

the picture control signal outputted from either of the 2 picture control signal output meanses from the predetermined view Since the picture control signal of another side is made into the signal for moving the aforementioned display object and control for scrolling of a screen, the position of the display object in a screen, and movement is simultaneously performed independently by easy and quick operation Like game equipment, for example, the renewal of a screen (scrolling of a screen), If it is the verge which performs quickly move control of the display object in a screen (for example, collimation in a shooting game) simultaneously, when there is nothing, control of the direction of screen rolling and the move direction of collimation is realized becoming independent simply and quickly. Moreover, when the aforementioned head position detection means is equipped with the degree sensor of vertical position angle, and the degree sensor of right-and-left position angle, all the positions of a head and the direction of movement are detectable.

[Translation done.]